ZMYM2 gene

zinc finger MYM-type containing 2

Normal Function

The *ZMYM2* gene (previously known as *ZNF198*) provides instructions for making a protein whose function is not clearly understood. It is a member of a family of zinc finger proteins, which contain one or more short regions called zinc finger domains. The zinc finger domains in the ZMYM2 protein are thought to allow it to regulate interactions between other proteins. ZMYM2 is found in the nucleus of the cell, where it likely associates with other proteins. Through these associations, the ZMYM2 protein may be involved in repairing DNA mistakes, controlling gene activity, or forming structures in the nucleus called PML nuclear bodies that block the growth and division of cells and promote their self-destruction (apoptosis).

Health Conditions Related to Genetic Changes

8p11 myeloproliferative syndrome

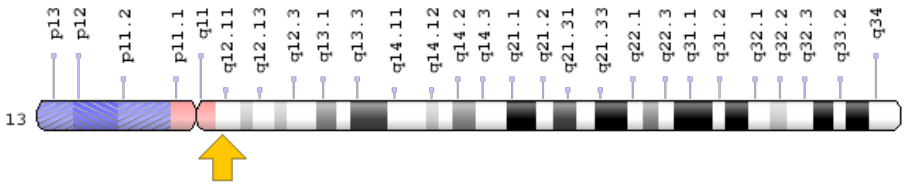
A genetic change involving the *ZMYM2* gene causes most cases of 8p11 myeloproliferative syndrome. This condition is characterized by an increased number of white blood cells (myeloproliferative disorder) and the development of lymphoma, a blood-related cancer that causes tumor formation in the lymph nodes. The myeloproliferative disorder usually develops into another form of blood cancer called acute myeloid leukemia. 8p11 myeloproliferative syndrome most commonly results from a rearrangement (translocation) of genetic material between chromosome 13 and chromosome 8. This genetic change fuses part of the *ZMYM2* gene on chromosome 13 with part of the *FGFR1* gene on chromosome 8. The translocation is found only in cancer cells.

The protein produced from the normal *FGFR1* gene can turn on cellular signaling that helps the cell respond to its environment, for example by stimulating cell growth. The protein produced from the fused *ZMYM2-FGFR1* gene leads to constant FGFR1 signaling. The uncontrolled signaling promotes continuous cell growth and division, leading to cancer.

Chromosomal Location

Cytogenetic Location: 13q12.11, which is the long (q) arm of chromosome 13 at position 12.11

Molecular Location: base pairs 19,957,412 to 20,091,845 on chromosome 13 (Homo sapiens Annotation Release 108, GRCh38.p7) (NCBI)



Credit: Genome Decoration Page/NCBI

Other Names for This Gene

- FIM
- fused in myeloproliferative disorders protein
- MYM
- RAMP
- rearranged in an atypical myeloproliferative disorder
- SCLL
- zinc finger MYM-type protein 2
- zinc finger protein 198
- zinc finger, MYM-type 2
- ZMYM2_HUMAN
- ZNF198

Additional Information & Resources

Educational Resources

- Molecular Cell Biology (fourth edition, 2000): Zinc-Finger Proteins https://www.ncbi.nlm.nih.gov/books/NBK21572/#A2587

Scientific Articles on PubMed

- PubMed
  https://www.ncbi.nlm.nih.gov/pubmed?term=%28ZMYM2%5BTIAB%5D%29+OR+%28ZNF198%5BTIAB%5D%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+3600+days%22%5Bdp%5D

OMIM

- ZINC FINGER, MYM-TYPE 2
  http://omim.org/entry/602221

Research Resources

- Atlas of Genetics and Cytogenetics in Oncology and Haematology
  http://atlasgeneticsoncology.org/Genes/ZNF198ID114.html
- HGNC Gene Family: Zinc fingers MYM-type
  http://www.genenames.org/cgi-bin/genefamilies/set/86
- HGNC Gene Symbol Report
  http://www.genenames.org/cgi-bin/gene_symbol_report?q=data/hgnc_data.php&hgnc_id=12989
- NCBI Gene
  https://www.ncbi.nlm.nih.gov/gene/7750
- UniProt
  http://www.uniprot.org/uniprot/Q9UBW7

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